Geophysical Research Abstracts
Vol. 15, EGU2013-6935, 2013
EGU General Assembly 2013

Analysis of site response variation resulting from fault movement: Observations from the Chelungpu fault in Taiwan

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The analysis of site response variation resulting from fault movement was the goal of this study. 1999/9/21 Chi-Chi event was the biggest earthquake happened in mid-west Taiwan in 20th century, and Chelungpu fault ruptured up to about 100 kilometers, with many surface deformation and rupture near the fault. Site response before and after Chi-Chi event were calculated from Horizontal-to-Vertical Spectral Ratio, and 32 earthquakes which distanced more than 100 kilometers from selected 9 seismic stations were used. The results show there were significantly changes near the fault after Chi-Chi event, and these variations were concentrated in the range of 10.5-12.5 Hz. The range was considered as the effect from fault movement disturbance. Moreover, another change was observed after year 2003, should use other information to verify the reason in the feature.